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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/709,776

05/27/2004

William G. America

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3775

23550

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12/14/2005

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EXAMINER

IM, JUNGHWA M

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/709,776	AMERICA, WILLIAM G.	
	Examiner	Art Unit	
	Junghwa M. Im	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/17/04, 6/24/04</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of claim 1-7 in the reply filed on October 15, 2005 is acknowledged.

The traversal is based on the grounds that it would not be a serious burden for Examiner to examine the entire sets of device and method claims since both of the device and method claims are sufficiently related. As stated previously in the Election/Restriction Office Action, pending claims are distinct for the reason that they have acquired a separate status in the art as shown by their distinctively different classification. Thus, restriction for the examination purpose, as indicated, is proper. Furthermore, the examiner respectfully submits that searching and examining the non-elected method claims in addition would, in fact, be an added burden.

The requirement is still deemed proper and is therefore made **FINAL**.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

### ***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjorkman et al. (US 6340435), hereinafter Bjorkman view of Colombo et al. (US Pub. 2003/0109146).

Regarding claim 1, Fig. 2H of Bjorkman shows a semiconductor device comprising:

a substrate [50];

a dielectric layer [46, 42, 40, 44] atop the substrate, the dielectric layer including a first sub-layer [42], a second sub-layer [40] and wherein the first sub-layer has an etch resistance different than the second sub-layer (col. 7, lines 49-57); and

an opening [an opening formed only in the layer 44] extending no deeper than the sub-layer nearest the substrate.

Fig. 2H of Bjorkman shows most aspect of the instant invention except "a first non-discrete transitional sub-layer residing between the first and second sub-layer." Fig. 1 of Colombo shows a non-discrete transitional sub-layer [14b] residing between the first [12] and second layer [14a] (paragraphs [0005]-[0006]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Colombo into the device of Bjorkman in order to have a non-discrete transitional sub-layer residing between the first and second sub-layer to form a second sub-layer to be as pure as possible.

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Regarding claim 2, Bjorkman discloses that an etch resistance of the first sub-layer is greater than an etch resistance of the second sub-layer (col. 7, lines 49-57).

Regarding claim 3, Bjorkman discloses that the first sub-layer has a greater content of at least one of carbon and fluorine than the second sub-layer (col. 2, lines 61-64).

Regarding claim 4 and 5, Bjorkman discloses the first sub-layer includes at least one component not included in the second sub-layer, the at least one component being selected from a group consisting of fluoroalkylsilanes, fluoralkylsiloxanes, perfluoroalkylsilanes, perfluoroalkylsiloxanes, alkylsilanes, and allcylsilaxanes while the at least one component is selected from a group consisting of methylsilane, dimethylsilane, trimethylsilane, trifluoromethylsilane, 1,2-disilane tetrafluoroethylene, 1,3-bis(silane difluoromethylene)disiloxane, 2,2-disilane hexafluorosilane, bis(trifluoromethylsiloxy)difluoromethane, octamethylcyclotetrasiloxane, and tetramethylcyclotetrasiloxane (col. 10, lines 15-54).

Regarding claim 6, Fig. 2H of Bjorkman shows the dielectric layer includes a third sub-layer [46] residing between the substrate and the first sub-layer, however, fails to show that "a second non-discrete transitional sub-layer residing between the third sub-layer and the first sub-layer." Fig. 1 of Colombo shows a non-discrete transitional sub-layer [14b] residing between two layers [12, 14a] (paragraphs [0005]-[0006]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Colombo into the device of Bjorkman in order to have a non-discrete transitional sub-layer residing between the second and third sub-layer to form a second sub-layer to be as pure as possible.

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Regarding claim 7, Bjorkman discloses the second sub-layer and the third sub-layer have substantially the same etch resistance (col. 8, lines 8-13 and col. 9, lines 45-50).

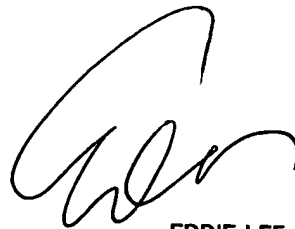
### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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